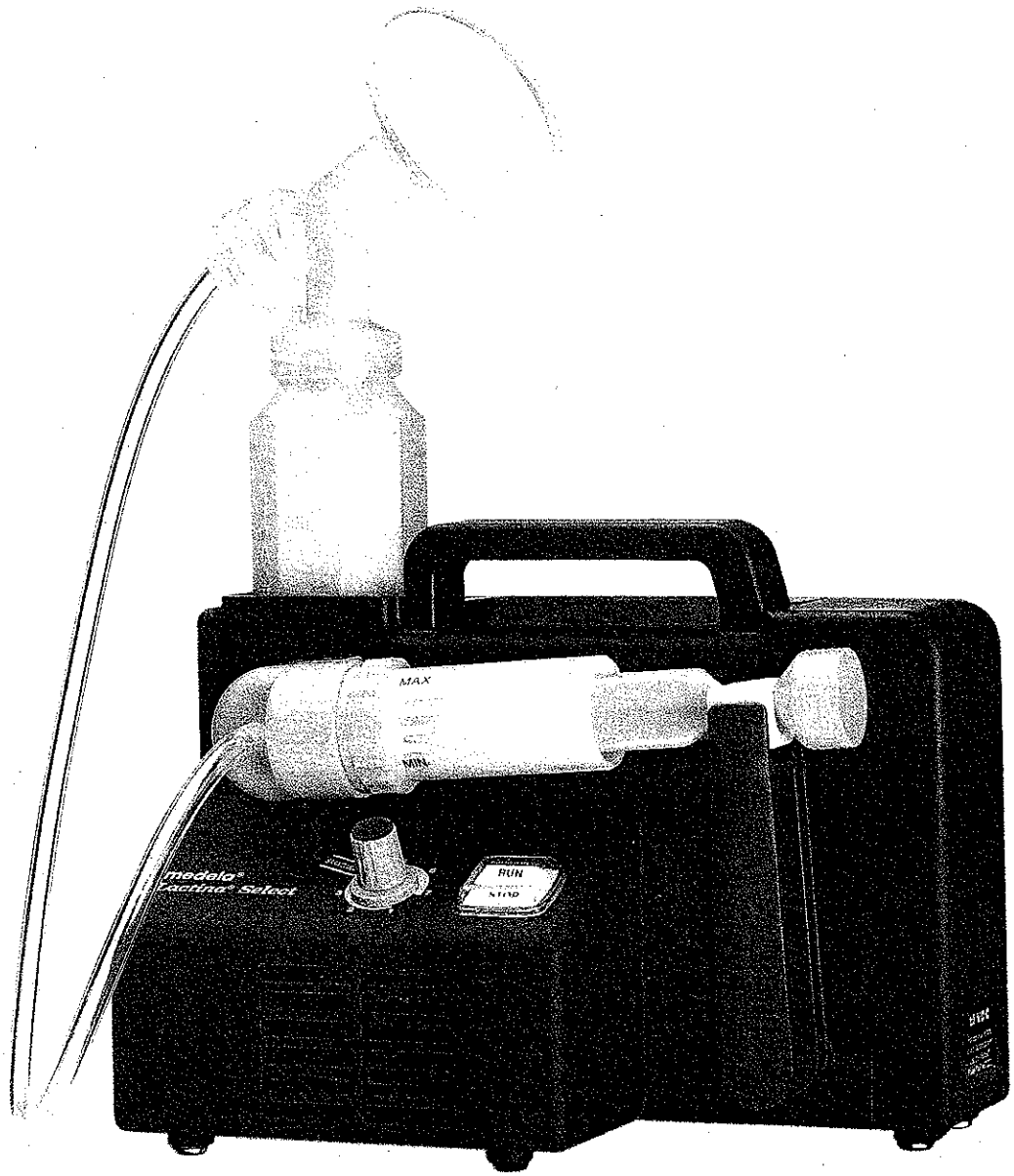
The Lactina® Electric Breastpump

Service Instructions



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Lactina is a registered trademark of Medela, Inc.

1. General Description

Medela's Lactina Breastpump has been specially developed to meet the most stringent demands where hygiene and mobility are concerned. The operating principle of the Medela Lactina is to simulate the natural, physiological conditions encountered in breastfeeding.

The pump motor and the suction source are completely separate. All components which can come into contact with the milk are part of the accessories and can be very easily disconnected from the drive unit for cleaning or sterilization. The accessory kit can also be used separately as a manual pump.

A handy carrying case is available, offering ample space for the pump, the accessory kit as well as for a cooler box with three milk bottles.

There are two different models of Lactina with the following general specifications:

- Lactina Select, type no. 016.2011
  - with variable speed, i.e. the number of suction cycles per minute can be regulated
  - powered by regular electric outlet (120 VAC) or by using the optional Medela Power Pack that provides 12 VDC with its rechargeable battery or its adapter for use in a cigarette lighter receptacle in boat or car.
- Lactina Electric Plus, type no. 016.2012
  - same as above, but with fixed suction rate

Both models can be used for single and for double pumping (simultaneous emptying of both breasts) by using the appropriate accessory kit. Refer to the separate accessory kit user's instructions for further details.

These Service Instructions are valid as of serial number 937501.

Disposal:
This breastpump is made of technical plastics and metals which cannot be separated. It has to be disposed of in accordance with local regulations.

WARNING

- Do not use or site the pump where it is exposed to direct sunlight or any other source of heat.
- This equipment is not suitable for use in the presence of a flammable anaesthetic mixture.
- If the power cord is damaged, it has to be replaced by a qualified service person.
- Before taking off the back of the Lactina housing for service purposes, do not forget to switch off the pump and to disconnect the power cord from the main supply.

2. Technical Description

2.1. Lactina Select 016.2011

2.1.1 Technical Data

Suction Rate: infinitely variable approx. 40–60 cycles/min., mains
approx. 50 cycles/min., battery

Suction strength: infinitely variable up to approx. 240 mmHg

Dimensions: L 250 mm, D 150 mm, H 180 mm

Standard: IEC 601.1, IEC 601.1.2

Power Supply: 100–240 VAC / 50–60 Hz, 50 W ou 12 VDC, 16 W

Weight: 2.4 kg

Environmental Conditions for Transport and Storage:
– Temperature: –20 °C to +50 °C
– Relative Humidity: 20% to 95%
– Atmospheric Pressure: 90 kPa to 106 kPa

Symbols on the specification plate:

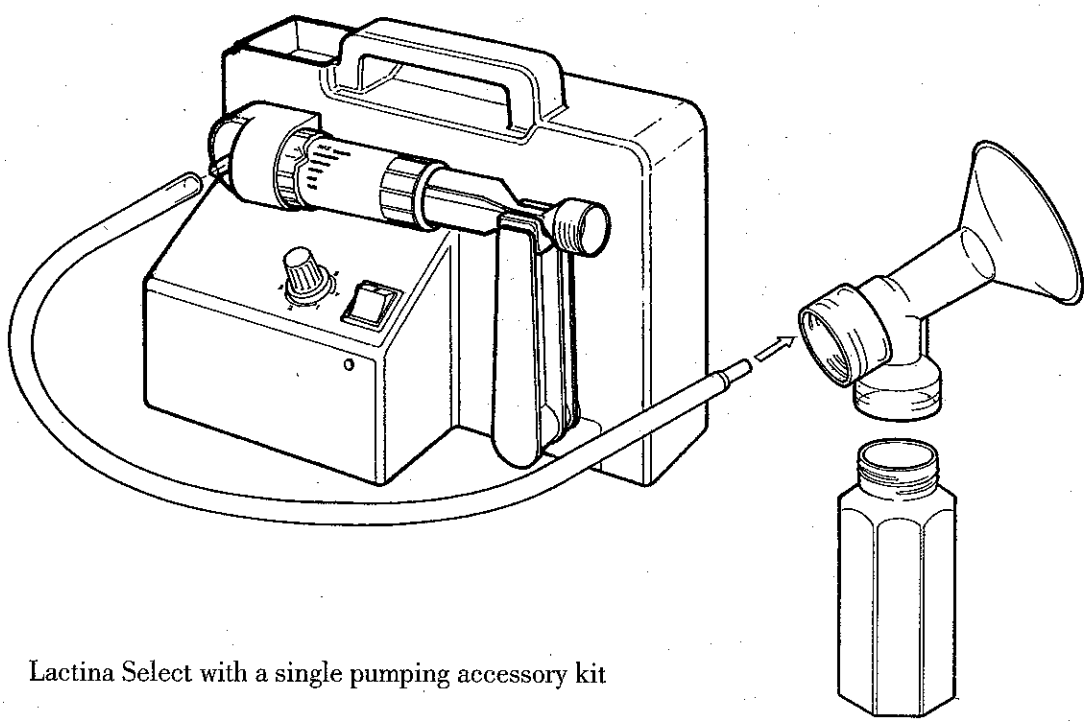
Protection type B

Protection Class II (double insulation)

Fuse T 1,25 A

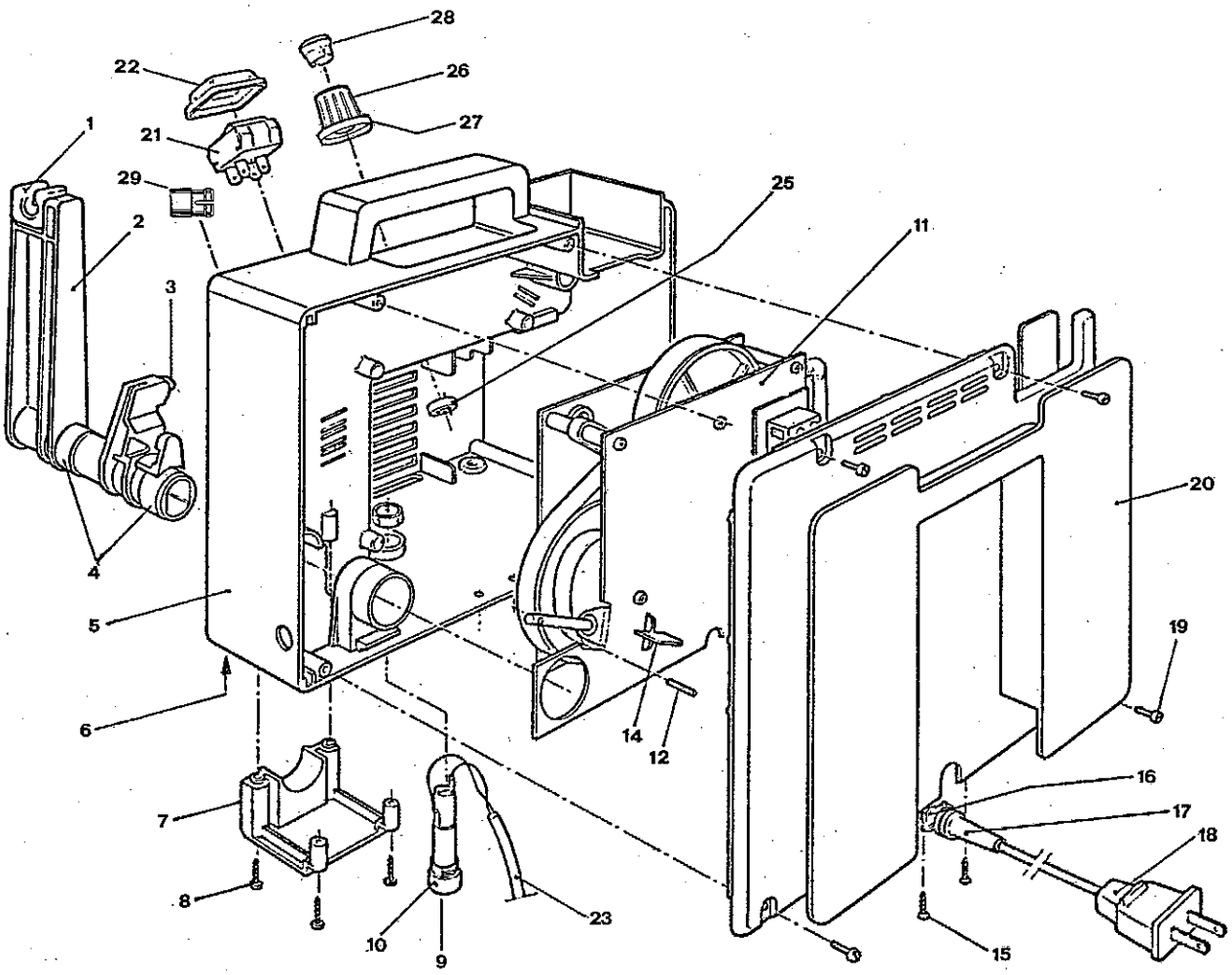
DC-Connection:

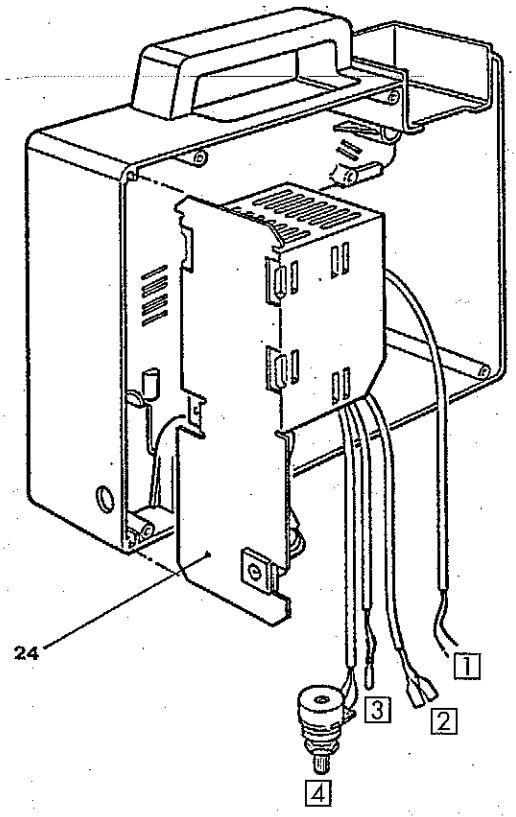
CE-mark according to 93/42/EEC CE 0123



Lactina Select with a single pumping accessory kit

2.1.2 Exploded View Diagram



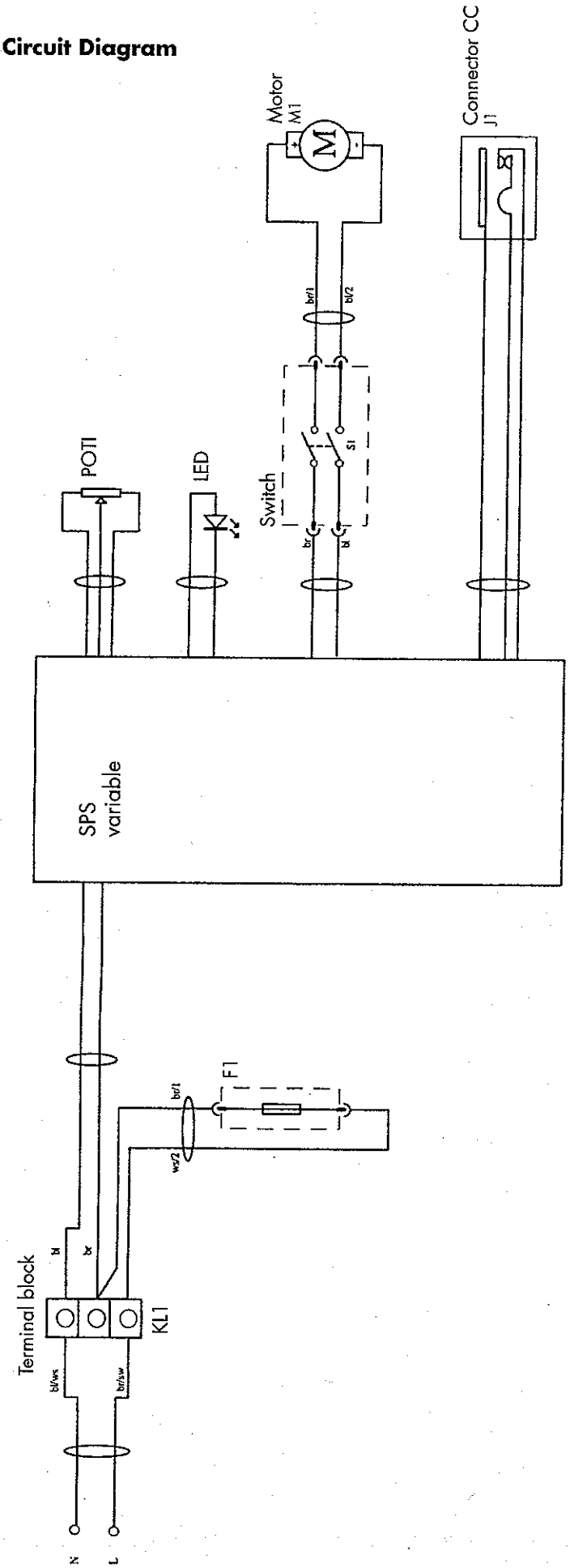


2.1.3 Spare Parts List

Item	Description	Order-No.
1.	Rubber clamp	820.0009
2.	Pumping arm, complete	800.0111
3.	Cotter	810.0179
4.	Bearing	810.0153
5.	Case complete variable SPS	800.0244
6.	Elastic buffer	812.0025
7.	Cover insert	810.0113
8.	Fillister head self-tapping screw type 1, 2.9 x 13	411.1205
9.	Fuse T 1.25 A USA	931.0012
10.	Fuse holder complete, USA	900.0382
11.	Gearbox with commutator motor 12 V	600.0406
12.	Bearing pin	599.0028
14.	Spring holder (special tool for fitting)	522.1433
15.	Countersunk self-tapping screw M 2.9 x 6.5	429.0002
16.	Cord clamp	599.0005
17.	Cord sleeve	824.1326
18.	Power cord USA	928.0026
19.	Fillister head screw with cross-slot M4 x 8	411.1001
20.	Back	810.0107
21.	Run-Stop rocker switch	934.0159
22.	Protecting cover (transparent)	812.0007
23.	Mains connecting cable	900.0332
24.	SPS variable for 016	901.0034
25.	Spacing piece complete	810.0351
26.	Knob	699.0065
27.	Nut cover with line	699.0064
28.	Cover for knob	699.0066
29.	Green LED lens	942.0009

The company reserves the right to change technical specifications and designations and/or order numbers without prior notice.

2.1.4 Electric Circuit Diagram



2.1.5 Dismantling

Important:

Before taking off the back of the Lactina housing for service purposes, do not forget to switch off the pump and to disconnect the power cord from the mains supply!

Gearbox unit:

- Remove the back (20) after releasing the screws (15 and 19).
- Release power cord with cable tension relief (16 to 18) from the back (20) and gearbox unit (11).
- Turn the gearwheel until the pumping arm (2) is swung in fully.
- Swing out the pumping arm (2) fully by hand.
- Lock the return spring by inserting the spring holder (14) obtainable from Medela in the slot provided for this purpose (see exploded view diagram).
- Swing in pumping arm (2).
- Withdraw bearing pin (12).
- Swing out pumping arm (2) again fully.
- Detach electrical connections on right-hand side from main terminal and withdraw.
- Remove gearbox unit (11).

Electronics:

- Remove gearbox (11) as described above.
- Compress retainer of switch case and press out switch (21) from inside to outside.
- Remove SPS red + blue connections from switch (21).
- Disconnect motor leads from switch (21).
- Withdraw LED (D1) (fuse holder 9/10 + 23 is also preferably dismantled beforehand).
- Detach SPS cable (24) from its holders.
- Remove cover (28) from knob (26 + 27).
- Release screw in knob (26 + 27) and remove knob.
- Release nut under knob (26 + 27) and draw off potentiometer inwards.
- Swing in pumping arm (2) fully.
- Hold pump case (5) by handle and withdraw SPS (24) with other hand.

Pump arm:

- Remove gearbox (11), preferably also SPS (24) according to description above.
- Dismantle cover insert (7) after releasing the screws (8).

2.1.6 Assembly

Assembly is performed in the reverse sequence to the above description. The following points should also be noted:

- Sequence of cable routing from top to bottom: mains lead from SPS, potentiometer (RV1), switch, LED (D1).

- The SPS must be placed right at the rear of the case and the cables must be pressed fully into their holders.

- Insert potentiometer (RV1) in spacing piece (25) in positioning pin from inside to outside. The potentiometer must lie flat on the spacing piece. Place nuts on from outside and tighten.

- Turn potentiometer clockwise to stop, fit knob (26 + 27) and turn clockwise until line is at 7. Tighten screw.

- Before fitting the back check whether the internal parts of the pumping arm (2) do not touch anywhere.

- Connections on right-hand side of mains terminal strip (KL1) from top to bottom: Power cord no. 1, power cord no. 2 and SPS brown, SPS blue.

- Connections on left-hand side of mains terminal strip from top to bottom: black, blank, white.

- Fitting of the cover insert (7) is simplified if the pumping arm (2) is not swung in completely, but only set to the final position together with the cover insert (7).

2.1.7 Final Test Procedure

a) General checks

– 100% check (visual) of type designation, serial no., DC plate 12 V and labeling on back.

– 100% check with respect to air gap between swivel arm and case with leaf gauge. Permissible air gap 0.2–1.5 mm; if the air gap is outside this range → reject unit and replace.

– 100% check with respect to gap between case and back, permissible gap 0.8 mm.
If gap > 0.8 mm, the back must be adjusted or replaced.

– 100% check high voltage test.
Test points: 4 screw heads on back
2 screw heads case floor

– 100% check rubber protection to switch for tightness.

– 100% check tightness of rotary knob with cover.

b) Running test A 100% check

Allow unit to run for 4 hours without cylinder at position 4 (standard). LED must light.

c) Running test B 100% check

Check of running noise:

Functional check:
– Mains plug inserted (SPS active)
- Switch at "RUN" unit runs and LED lights
- Switch at "STOP" LED lights, unit stationary

– DC inserted (12 V) (SPS not active)
- Switch at "RUN" unit runs, LED does not light
- Switch at "STOP" LED does not light, unit stationary

2.2. Lactina Electric Plus 016.2012

2.2.1 Technical Data

Suction Rate: approx. 50 cycles/min.

Suction strength: infinitely variable up to approx. 240 mmHg

Dimensions: L 250 mm, D 150 mm, H 180 mm

Standard: IEC 601.1, IEC 601.1.2

Power Supply: 100–240 VAC / 50–60 Hz, 50 W or 12 VDC, 16 W

Weight: 2.4 kg

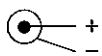
Environmental Conditions for Transport and Storage:
– Temperature: –20 °C to +50 °C
– Relative Humidity: 20% to 95%
– Atmospheric Pressure: 90 kPa to 106 kPa

Symbols on the specification plate:

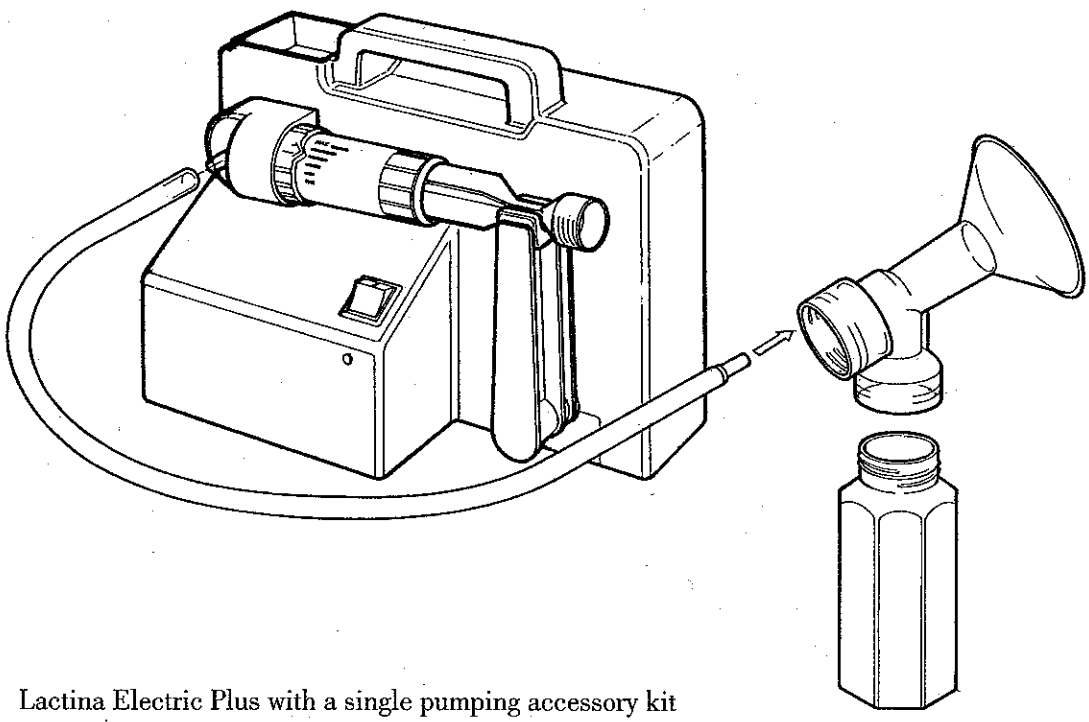
Protection type B

Protection Class II (double insulation)

Fuse T 1,25 A

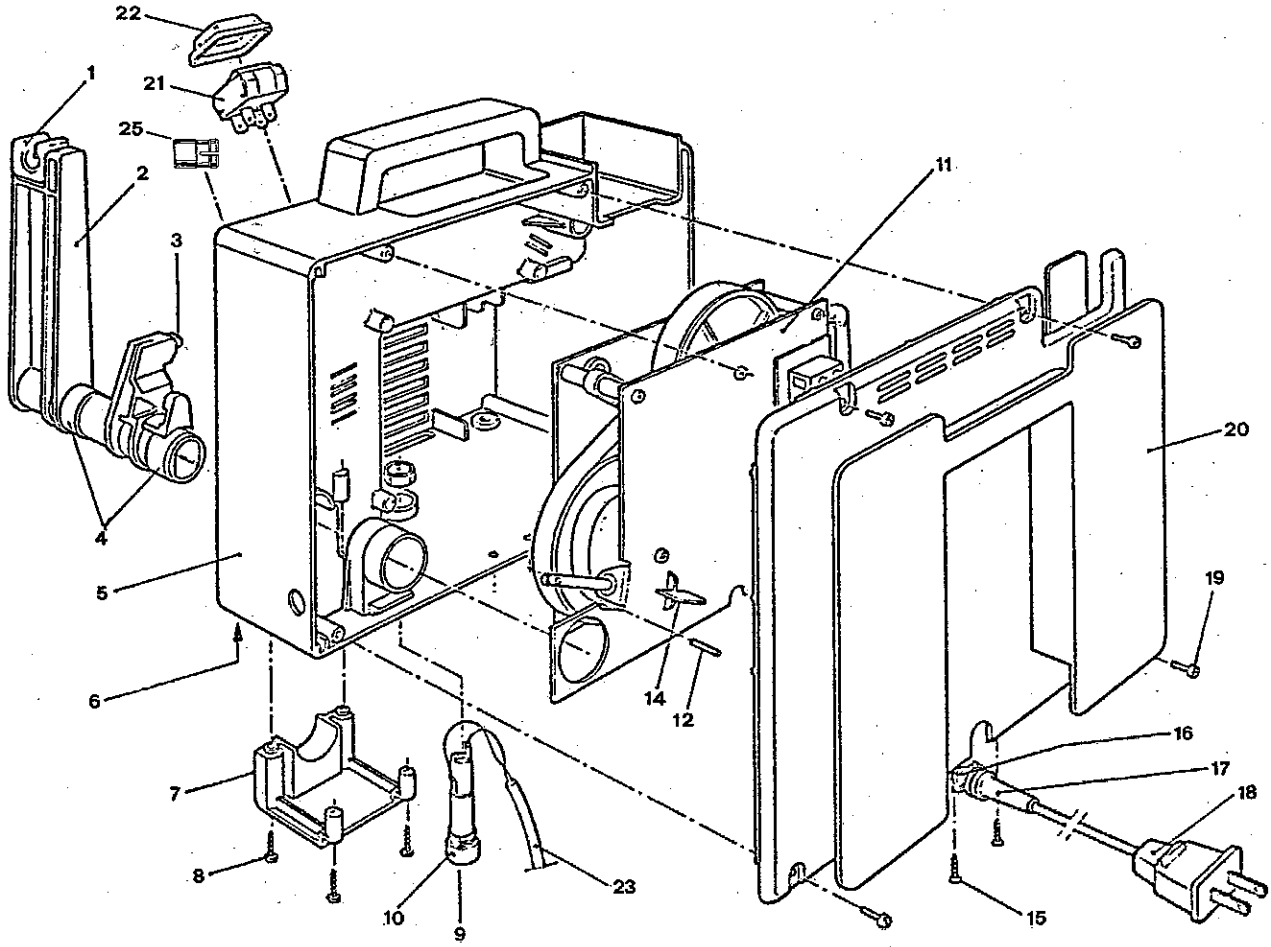
DC-Connection: 

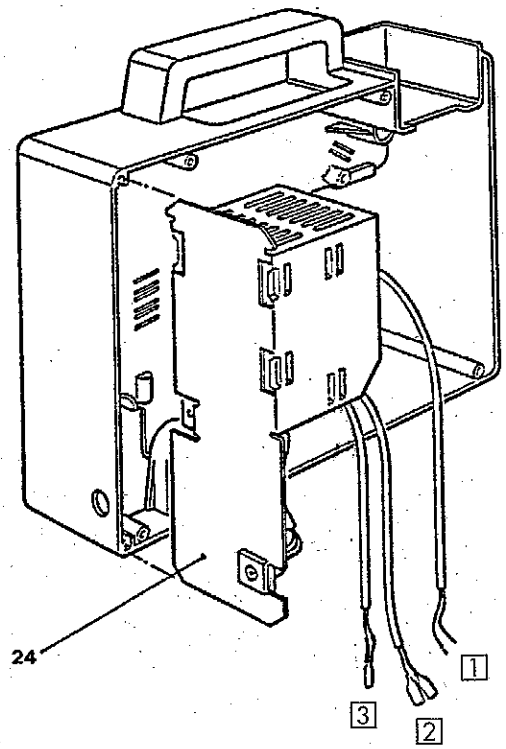
CE-mark according to 93/42/EEC CE 0123



Lactina Electric Plus with a single pumping accessory kit

2.2.2 Exploded View Diagram



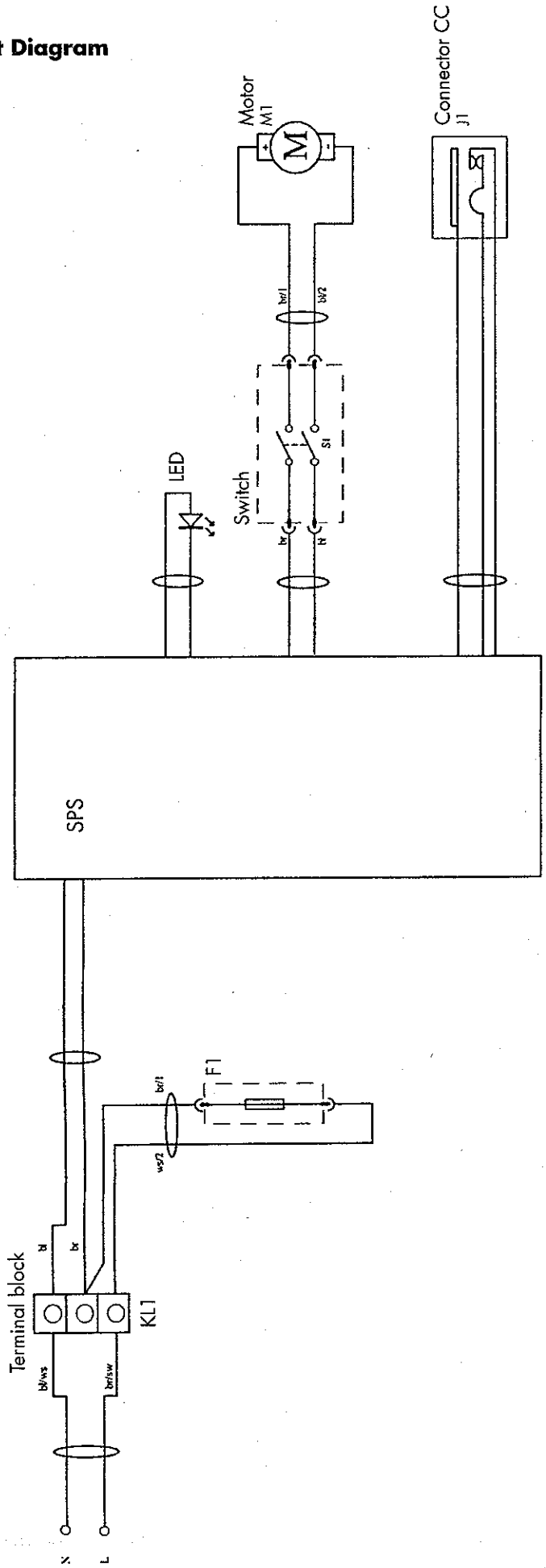


2.2.3 Spare Parts List

Item	Description	Order-No.
1.	Rubber clamp	820.0009
2.	Pumping arm, complete	800.0111
3.	Cotter	810.0179
4.	Bearing	810.0153
5.	Case complete SPS	800.0245
6.	Elastic buffer	812.0025
7.	Cover insert	810.0113
8.	Fillister head self-tapping screw type 1, 2.9 x 13	411.1205
9.	Fuse T 1.25 A USA	931.0012
10.	Fuse holder complete, USA	900.0382
11.	Gearbox with commutator motor 12 V	600.0406
12.	Bearing pin	599.0028
14.	Spring holder (special tool for fitting)	522.1433
15.	Countersunk self-tapping screw M 2.9 x 6.5	429.0002
16.	Cord clamp	599.0005
17.	Cord sleeve	824.1326
18.	Power cord USA	928.0026
19.	Fillister head screw with cross-slot M4 x 8	411.1001
20.	Back	810.0107
21.	Run-Stop rocker switch	934.0159
22.	Protecting cover (transparent)	812.0007
23.	Mains connecting cable	900.0332
24.	SPS without potentiometer for 016	901.0035
25.	Green LED lens	942.0009

The company reserves the right to change technical specifications and designations and/or order number without prior notice.

2.2.4 Electric Circuit Diagram



2.2.5 Dismantling

Important:

Before taking off the back of the Lactina housing for service purposes, do not forget to switch off the pump and to disconnect the power cord from the mains supply!

Gearbox unit:

- Remove the back (20) after releasing the screws (15 and 19).
- Release power cord with cable tension relief (16 to 18) from the back (20) and gearbox unit (11).
- Turn the gearwheel until the pumping arm (2) is swung in fully.
- Swing out the pumping arm (2) fully by hand.
- Lock the return spring by inserting the spring holder (14) obtainable from Medela in the slot provided for this purpose (see exploded view diagram).
- Swing in pumping arm (2).
- Withdraw bearing pin (12).
- Swing out pumping arm (2) again fully.
- Detach electrical connections on right-hand side from main terminal and withdraw.
- Remove gearbox unit (11).

Electronics:

- Remove gearbox (11) as described above.
- Compress retainer of switch case and press out switch (21) from inside to outside.
- Remove SPS red + blue connections from switch (21).
- Disconnect motor leads from switch (21).
- Withdraw LED (D1) (fuse holder is also preferably dismantled beforehand).
- Detach SPS cable (24) from its holders.
- Swing in pumping arm (2) fully.
- Hold pump case (5) by handle and withdraw SPS (24) with other hand.

Pump arm:

- Remove gearbox (11), preferably also SPS (24) according to description above.
- Dismantle cover insert (7) after releasing the screws (8).

2.2.6 Assembly

Assembly is performed in the reverse sequence to the above description. The following points should also be noted:

- Sequence of cable routing from top to bottom: mains lead from SPS, switch, LED (D1).
- The SPS must be placed right at the rear of the case and the cables must be pressed fully into their holders.
- Before fitting the back check whether the internal parts of the pumping arm (2) do not touch anywhere.
- Connections on right-hand side of mains terminal strip (KL1) from top to bottom:
  Power cord no. 1, power cord no. 2, SPS brown, SPS blue.
- Connections on left-hand side of mains terminal strip from top to bottom: black, blank, white.
- Fitting of the cover insert (7) is simplified if the pumping arm (2) is not swung in completely, but only set to the final position together with the cover insert (7).

2.2.7 Final Test Procedure

a) General checks

– 100% check (visual) of type designation, serial no., DC plate 12 V and labeling on back.

– 100% check with respect to air gap between swivel arm and case with leaf gauge. Permissible air gap 0.2–1.5 mm; if the air gap is outside this range → reject unit and replace.

– 100% check with respect to gap between case and back, permissible gap 0.8 mm.
If gap > 0.8 mm, the back must be adjusted or replaced.

– 100 % check high voltage test.
Test points: 4 screw heads on back
2 screw heads case floor

– 100% check rubber protection to switch for tightness.

– 100% check tightness of rotary knob with cover.

b) Running test A 100% check

Allow unit to run for 4 hours without cylinder. LED must light.

c) Running test B 100% check

Check of running noise:

Functional check:
– Mains plug inserted (SPS active)
- Switch at "RUN" unit runs and LED lights
- Switch at "STOP" LED lights, unit stationary

– DC inserted (12 V) (SPS not active)
- Switch at "RUN" unit runs, LED does not light
- Switch at "STOP" LED does not light, unit stationary

3. Precautionary Measures / Trouble Shooting

The breastpump should only be used in a dust-free environment. Do not use or site the pump where it is exposed to direct sunlight or any other source of heat.

What to do when...

- **the pump does not run when it is switched on:**
  Check whether the Lactina breastpump is properly connected to the electric supply. Check the fuse.

- **pump action is too weak:**
  Suction strength can be adjusted using the vacuum regulator. Maximum suction is achieved by setting the pointer on the regulator ring to MAX. If suction strength is still inadequate at this setting, please check whether:

  - the vacuum regulator ring has been turned beyond the stop, has been displaced, is no longer a close fit or is dirty on the inside.
  - the rubber seal of the piston is seating correctly and is in good condition.
  - the valve has been correctly fitted to the breastshield. Is the valve membrane clean and closing properly when in resting position?
  - the cylinder has been screwed tightly home into the cylinder holder (or into the breastshield in the case of manual operation).
  - there is no leak in the tube connection between cylinder holder and breastshield.
  - the breastshield fits closely to the breast.

- **the vacuum cannot be regulated:**
  The two holes in the cylinder under the vacuum regulator ring may be blocked with dirt. Clean them using a brush and soapy water. The points listed above should also be checked.

- **the vacuum is not released at the end of the suction stroke:**
  The ventilation hole at the bottom of the cylinder may be blocked with dirt; or the piston has not been drawn right to the end during manual operation.

- **the piston does not return after the suction phase:**
  Check whether the suction circuit is blocked or whether there is a kink in the tubing.

4. Service Information

Important:

Before starting the procedure described below, do not forget to switch off the pump and to disconnect the power cord from the main supply!

The design of your Medela Lactina Breastpump means that routine servicing is superfluous. All bearings are maintenance-free and, when used as directed (i.e. only in a dust-free environment and in the normal operating position), there will be little ingress of dirt into the drive unit motor. Cleaning the outside of the pump is the only care needed, particularly around the pivot arm and the guide slot for the cylinder holder.
A soft cloth moistened (not dripping!) with warm soapy water or Cavicide® solution is recommended for cleaning purposes (Cavicide is a registered trademark of Micro Aseptics, Inc.).

To ensure that the breastpump will provide troublefree operation for years to come,
it should be examined periodically according to the following check-list.

Check-list:

1. The specification of the fuse employed as well as the power supply to which the pump is connected must match the data on the pump specification plate.

2. Fit the accessories to the breastpump as described in the instructions for use (included with the accessory kit). The breastshield should then be connected to a vacuum gauge.

3. Connect the power cord to the main supply and switch on the unit. The pivot arm must operate with a pumping motion.

4. The following values must be attained:

   Suction rate: Lactina Electric Plus — approx. 50 cycles/min.
   Lactina Select — approx. 40–60 cycles/min., mains
   approx. 50 cycles/min., battery

   Suction strength at MAX setting:

Location	0 meter above sea level	500 meter above sea level	1000 meter above sea level	2000 meter above sea level
Factor	1.00	0.94	0.88	0.78
Lactina Electric Plus and Lactina Select approx.	255 mmHg	240 mmHg	225 mmHg	199 mmHg

5. Safety Tests

The following safety tests should be performed yearly:

1. Visual check

The breastpump should be examined for damages and dirt on the inside and outside and repaired or cleaned if necessary.

2. Functional test

Every function of the breastpump must be controlled according to the Instructions for Use and Service Instructions.

3. Electrical tests

- Enclosure leakage current: This test should be performed under normal conditions and under the conditions of Single Fault. Conditions of Single Fault: The interruption of each supply conductor one at a time.
- Patient leakage current.
- The dielectric strength between live parts and the housing. This insulation shall be double insulation.

The allowable values are defined according to the chart below:

Test		Allowable Value		Chapter IEC 601-1
Enclosure leakage current		NC 0,1 mA	SFC 0,5 mA	19.1 19.2 19.3
Patient leakage current	DC	NC 0,01 mA	SFC 0,05 mA	19.1 19.2
	AC	NC 0,1 mA	SFC 0,5 mA	19.3 19.4
Dielectric strength	50 <U ≤150 V	3000 V (Double insulation)		20.1 20.3
	150 <U ≤250 V	4000 V (Double insulation)		20.4

NC: Normal Condition
SFC: Single Fault Condition
U: Reference voltage

6. Terms of Guarantee

Medela guarantees the perfect quality and finish of each Lactina Breastpump for a period of 3 years from the factory delivery date. During this period, all faulty components will be replaced free of charge. This guarantee does not extend to components which are subject to wear and tear or which have been damaged due to incorrect use.

Further conditions according to International Standard IEC 601.1, Item 6.8.2b:

The manufacturer may only be held responsible for inadequate safety, reliability and performance of the unit if

- assembly
- additional items
- adjustments
- alterations or repairs

have been carried out by persons authorized by the manufacturer and

- the electrical installation within the room concerned satisfies IEC requirements (in the course of preparation)
- the unit is used as specified in the instructions for use.
- Accessory kits used on Lactina breastpumps are authorized by Medela, Inc.

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